



DIGITAL MAGNETIC TAPE HEADS

FEATURES:

- **TRACKS:** Any format to 32 tracks per inch.
- **UNIFORMITY:** Track to track ± 1 db.
- **GAP-to-GAP SPACING:** Read-to-write gaps as close as .150 inches.
- **GAP-to-GAP PARALLELISM:** to within 100 microinches standard. Less than 100 microinches on request.
- **MOUNTING:** Any physical and mounting configuration.
- **DESIGNED:** To meet all applicable military specifications.

The Magne-Head DBW Series is a family of digital read-after-write magnetic heads. The photograph above shows the industry standard 7 track head built to I.R.I.G. mechanical specifications. Other available track configurations range from 1 to 16 tracks per $\frac{1}{2}$ inch.

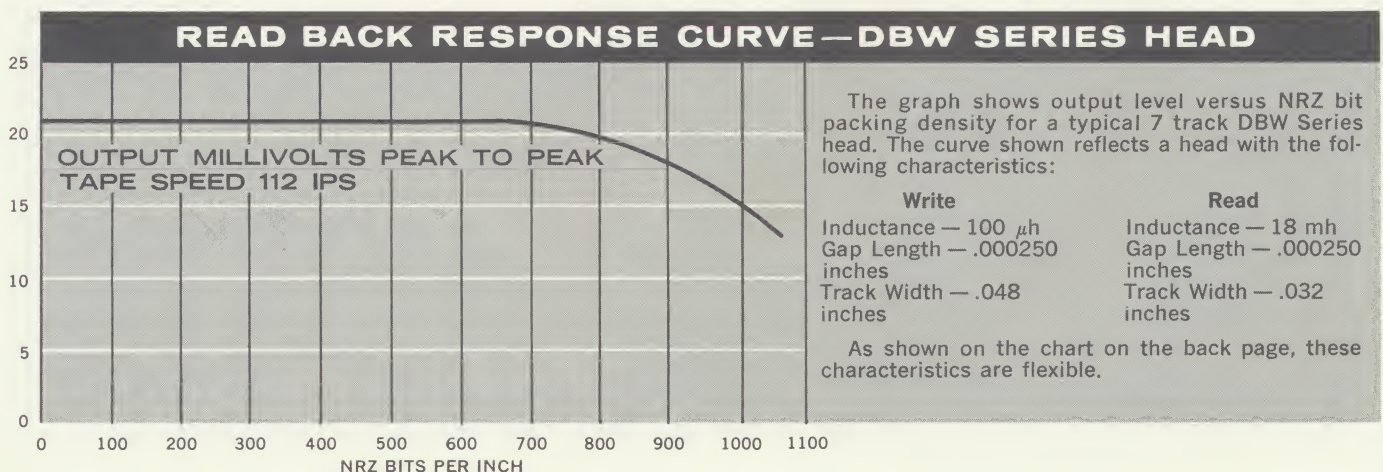
DBW Series heads are uniform from head to head as well as from track to track. Quality Control conforming to rigorous MIL-Q-9858 standards



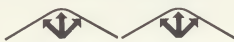
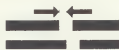
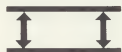
DBW-7 7 track read-after-write digital tape head

assures this uniformity—essential for quantity production.

Magne-Head also furnishes base plates and tape guides if desired, married to the head within optically controlled tolerances. (Azimuth deviation as low as $\pm \frac{1}{3}$ minute.) Flush face head construction coupled with spring loaded, surface hardened tape guides extends tape life and assures stability of head characteristics—through years of operation.



SPECIFICATIONS

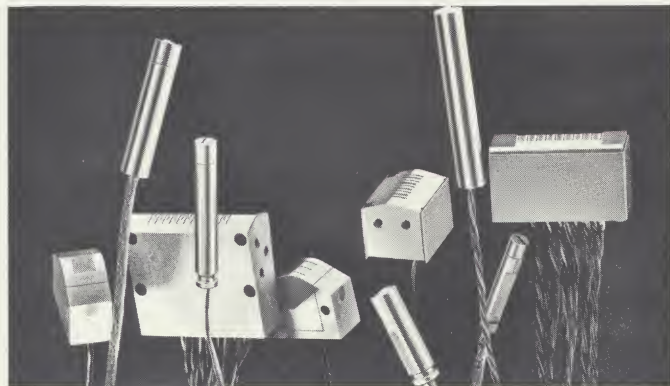
DBW SERIES TRACKS PER ½ INCH		3	4	5	6	7	8	9	10
TRACK WIDTH MAXIMUM INCHES	WRITE	.125	.090	.070	.060	.048	.044	.044	.032
	READ	.100	.074	.054	.044	.040	.040	.040	.026
INDUCTANCE MAXIMUM — MILLIHENRIES	READ	500	400	300	200	150	100	90	80
CROSS TALK MAXIMUM — db	READ TO READ	—70	—60	—55	—50	—45	—43	—42	—41
CROSS TALK MAXIMUM — db	WRITE TO READ .390 GAP TO GAP	—50	—50	—50	—50	—50	—50	—50	—50
READ TO WRITE GAP SPACING		 .150 INCHES MINIMUM							
GAP LENGTH		 20 MICROINCHES MINIMUM							
RADIUS		 .125 INCHES MINIMUM RECOMMENDED FOR REASONABLE HEAD WEAR							
GAP SCATTER		 ± 50 MICROINCHES — STANDARD ± 25 MICROINCHES — AVAILABLE							
AZIMUTH		 ± 1 MINUTE — STANDARD ± ⅓ MINUTE — AVAILABLE							
PARALLELISM	READ TO WRITE GAP	 100 MICROINCHES PER INCH							
MOUNTING		 ANY							

DBW SERIES DIGITAL MAGNETIC TAPE HEADS

Magne-Head is an industry leader in the design and manufacture of magnetic heads for all types of commercial and military applications. Continuing research enables Magne-Head to offer ideas and improvements in both performance standards and packaging design. Our engineers are available to work with you on any magnetic head problem—large or small—from prototype to production. Magne-Head has demonstrated capabilities in

design and production for such applications as a satellite-borne telemetry tape recorder, 56-channel in line read-after-write head for magnetic card random access computer memory, shipboard tactical data processing systems, aircraft audio pilot warning device, tape memory for stock exchange quotation device, and heads to operate in radio-active environments.

FOR THE FULL STORY: write or call Magne-Head—area code 213—772-2351/TWX 910-325-6203



- DRUM
- DISC
- DIGITAL TAPE
- ANALOG TAPE
- CHARACTER RECOGNITION
- MAGNETIC CARDS

MAGNE-HEAD

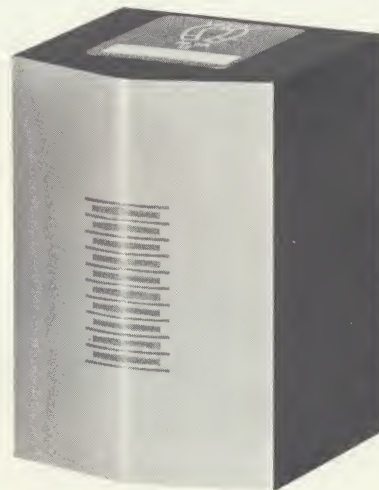
DATA BULLETIN



TB SERIES ANALOG MAGNETIC TAPE HEADS

FEATURES:

- **UNIFORMITY:** *Track to track $\pm \frac{1}{2}$ db.*
- **SHOCK RESISTANCE:** *Engineered to withstand 100 G's.*
- **OPERATING TEMPERATURE:** *From -55°F . to $+185^{\circ}\text{F}$.*
- **MOUNTING:** *Any physical and mounting configuration.*
- **TRACK DENSITY:** *To 30 per inch.*
- **DESIGNED:** *To meet all applicable military specifications.*

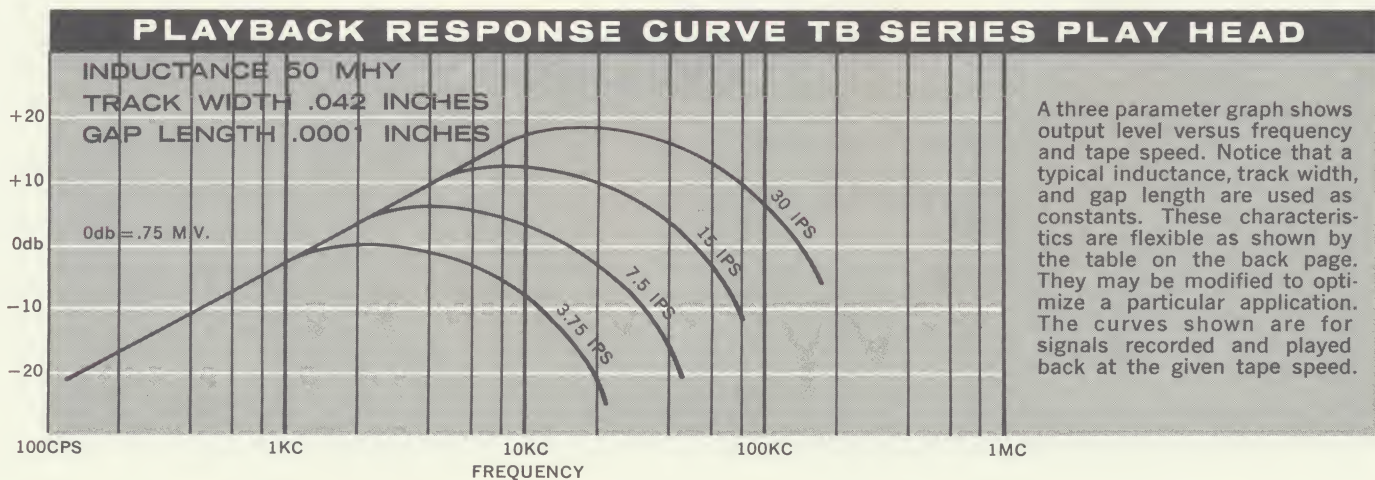


TB-10

10 tracks, $\frac{1}{2}$ " tape 150 mhy per track

Here is another in the series of Magnetic Analog Tape Heads designed and manufactured by the Magne-Head Division of General Instrument Corporation. The very tight track to track output uniformity available ($\pm \frac{1}{2}$ db) will permit switching of the same record or play amplifier from track to track without changing record or bias current, frequency compensation or pre-emphasis. The high

track density allows a very efficient use of tape recording area and the track density may be increased by interlacing two or more heads. All metal, flush face construction provides longer tape life. Magne-Head has delivered more than 250 types of tape heads to meet varied requirements of military, and commercial applications.



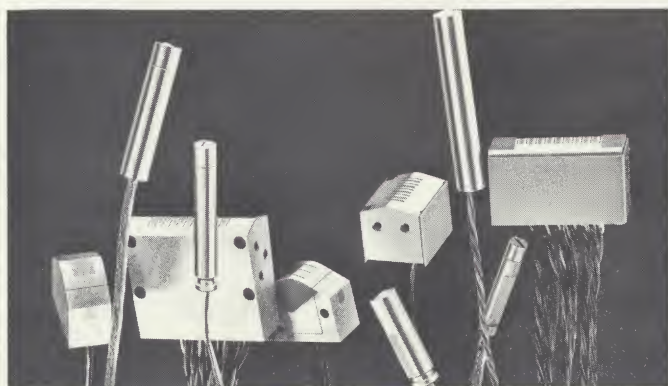
SPECIFICATIONS								
TB SERIES TRACK PER INCH	3	4	5	6	7	8	9	10
TRACK WIDTH MAXIMUM INCHES	.090	.090	.070	.054	.042	.032	.026	.020
TRACK PITCH INCHES	.140	.125	.100	.083	.070	.062	.056	.050
INDUCTANCE MAXIMUM-MILLIHENRIES	1000	800	600	400	300	200	150	150
CROSSTALK MAXIMUM—db	70	60	55	50	45	45	42	40
GAP LENGTH	 20 MICRO INCHES—MINIMUM							
RADIUS	 .125 INCHES—MINIMUM RECOMMENDED FOR REASONABLE HEAD WEAR							
GAP SCATTER	 ± 50 MICRO INCHES—STANDARD ± 25 MICRO INCHES—AVAILABLE							
AZIMUTH	 ± 1 MINUTE—STANDARD $\pm \frac{1}{3}$ MINUTE—AVAILABLE							
MOUNTING	 ANY							

TB SERIES ANALOG MAGNETIC TAPE HEADS

Magne-Head is a proven leader in the design and manufacture of magnetic heads for all types of commercial and military applications. A program of continual research enables Magne-Head to offer you the latest developments both in performance standards and packaging design. Our engineers are available to work with you on any magnetic head problem—large or small—from prototype to production. Magne-Head has demonstrated capa-

bilities in design and production for such applications as a satellite-borne telemetry tape recorder, 56-channel in line read-after-write head for magnetic card random access computer memory, ship-board tactical data processing systems, aircraft audio pilot warning device, tape memory for stock exchange quotation device, and heads to operate in radio-active environment.

FOR THE FULL STORY: write or call Magne-Head—area code 213—772-2351/TWX 910-325-6203



- DRUM
- DISC
- DIGITAL TAPE
- CHARACTER RECOGNITION
- MAGNETIC CARDS



MAGNE-HEAD



MAGNETIC DRUM MEMORY SYSTEMS

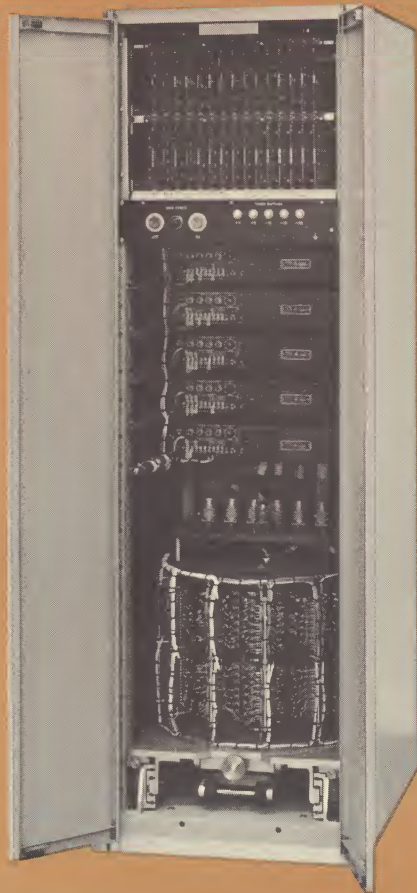
Magne-Head engineers and technicians form a team with the proven capability to design Magnetic Drum Memory Systems which meet the most exacting requirements.

Every Magne-Head project benefits from experience in engineering and producing sophisticated drum memory systems. Accomplishments include memories for military command and control networks, tactical displays, and computer-based communications multiplexing.

Teamwork does it. A single engineering group is responsible for the complete system. The three major system components—heads, drums, and circuits—are designed and manufactured at Magne-Head by specialists in each component area.

Component integration can be costly and time consuming if a memory system is purchased piecemeal. Matching heads to drums and both to circuitry are exacting specialties, *Magne-Head specialties*. Production hardware at Magne-Head is "state of the art" elsewhere. Put these accomplishments and the benefits of single-source responsibility for all components to work for you.

Check your requirements for your complete Magnetic Drum Memory System with Magne-Head.



1

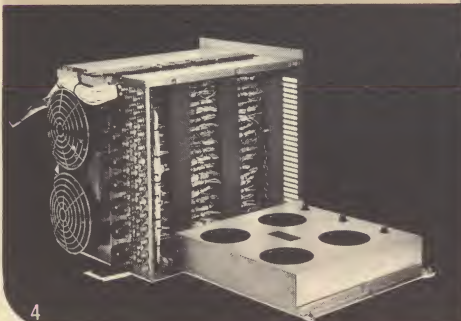
1. Typical memory system for computers, data processors, and communications switching systems.
2. Drum Tester.
3. Logic Boards.
4. Military Memory System



2



3



4

**GENERAL INSTRUMENT CORPORATION...
RESEARCH AND MANUFACTURING FACILITIES
LOCATED THROUGHOUT THE UNITED STATES**

Beckley
West Virginia
Brooklyn
New York
Chicopee
Massachusetts
Darlington
South Carolina

Garden City
New York
Hawthorne
California
Hicksville
New York (2)
Joliet
Illinois

Mt. Forest
Ontario, Canada
Newark
New Jersey
Tazewell
Virginia
Waterloo
Ontario, Canada

Westbury
New York
Westwood
Massachusetts
Woodbury
Connecticut
Woonsocket
Rhode Island



**MAGNE-HEAD, A DIVISION OF
GENERAL INSTRUMENT CORPORATION**

MAGNETIC MEMORY DRUMS

All magnetic memory drums designed and manufactured by Magne-Head are made of special magnesium alloy, chosen for its strength, light weight and dimensional stability through temperature cycling and aging.

The rotating member is a properly proportioned cylinder with end plates mounted on tapered conical fits. The shaft and end plates are fitted together with slotted cones. There are no press or shrink fits in a Magne-Head drum.

The magnetic medium is hard nickel-cobalt plate which eliminates catastrophic failures due to foreign matter coming in contact with the rotating member, and the dusting and flaking problems inherent with iron oxide coatings.

The shroud assembly is an ultra precision machined portion of the drum with close tolerances which make possible a simple head placement and maintenance procedure.

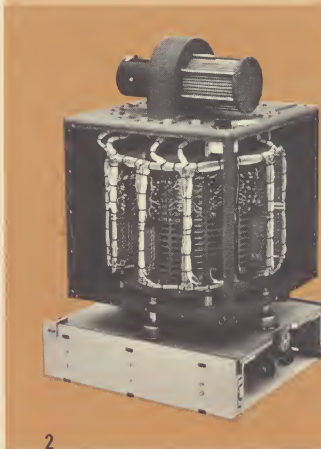
A motor is custom designed for each application and is shaped to fit inside the drum proper, resulting in very efficient use of space.

The Magne-Head drum uses a double squirrel cage rotor in every induction motor. A low reluctance portion of the rotor gives excellent start characteristics; a high reluctance portion contributes to low slip, high efficiency run characteristics.

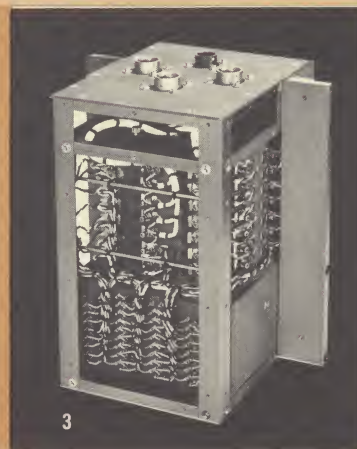
The light weight magnesium drum, coupled with air floating record-playback heads and metal magnetic coatings make up the most efficient drum package available. This package is almost impervious to temperature shocks, environmental extremes, aging, technician's error, shipping hazards, and the myriad of other problems, inherent with less advanced designs.



1



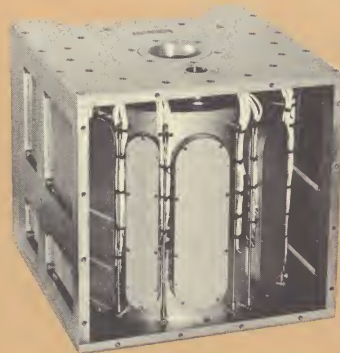
2



3

1. D5000 Drums coupled for 40,000,000 bit capacity as compared to D50 with 200,000 bit capacity.
2. D500 Magnetic Memory Drum.

3. Militarized D50 Magnetic Memory Drum.
4. D500 Hermetically Sealed Militarized Magnetic Memory Drum.



4

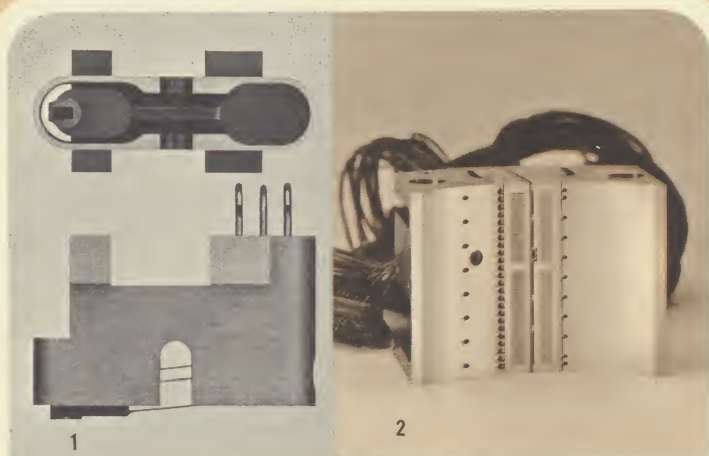
AIR FLOATING DRUM HEADS

Magne-Head manufactures a complete line of air floating record-playback heads. Conservative design, tight manufacturing tolerances, and close surveillance of manufacturing eliminate complicated installation and adjustment procedures. The addition or replacement of heads without stopping the drum cuts installation and adjustment time to a fraction of that required for conventional, non-floating heads. The proximity of the air floating head to the magnetic medium greatly improves record-read efficiency. Record currents are reduced typically by a factor of two. Playback signal is at least tripled over non-floating heads of equivalent inductance and track width. The resulting lower inductance, required for a given application, allows more rapid data transfer into and out of the drum.

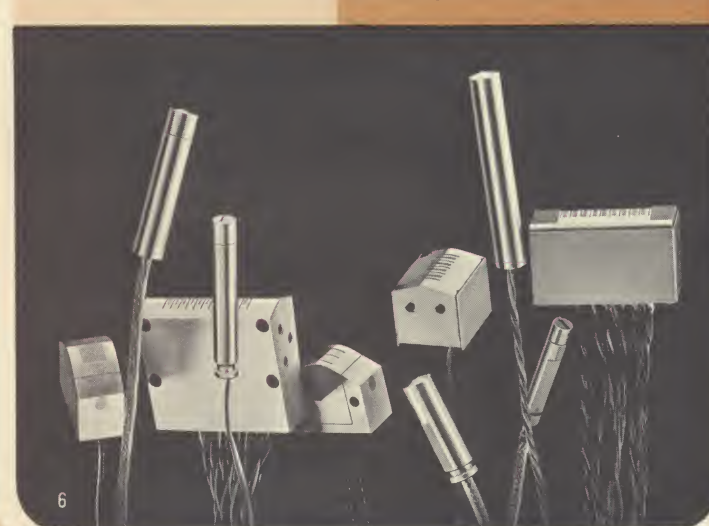
MAGNETIC HEADS

Magne-Head is an industry leader in the design and manufacture of magnetic heads for all areas of commercial and military application. Continuing research enables Magne-Head to offer improvements in both performance standards and packaging design. Heads for special purposes, such as magnetic ink character recognition, ledger stripe reading and multiple track magnetic card reading are used in production by many leading equipment manufacturers. Industry standard tape heads are available in the IBM and IRIG track formats for read after write and interlace recording.

Look to Magne-Head. Our engineering people are available to work with you on any magnetic head problem—large or small—from prototype to production.



1. MHD-1 Single track airfloating digital drum head.
2. DHW-56 56-track read after write digital head—3" tape.
3. TB-10 10-track read/write analog head— $\frac{1}{2}$ " tape.
4. DEW-16 16-track read after write digital head—1" tape.
5. DBW-7 7-track read after write digital head— $\frac{1}{2}$ " tape.
6. Head group illustrating form factor flexibility.



MAGNE-HEAD, A DIVISION OF GENERAL INSTRUMENT CORPORATION

Magne-Head is a division of General Instrument Corporation, one of America's largest and most successful electronic companies. As do all divisions of General Instrument, Magne-Head operates autonomously, with the stability and maturity of management characteristic of large corporations. Each division is free to draw on each of the others for their particular specialties. This gives each division a broad platform of capability. The financial strength of General Instrument assures that Magne-Head will be here to finish long term projects.

Activities at Magne-Head cover the whole range of manufacturing from prototype to production. Magne-Head designs and manufactures tape heads, magnetic memory drums and magnetic memory drum systems for aerospace, military and industrial applications. Many of the nation's critical and high priority military and space programs rely on Magne-Head products for both in-flight and ground support applications.

Quality Control at Magne-Head is an independent group reporting directly to Division management.

Military and commercial customer survey teams have approved Magne-Head production and inspection facilities. Plant, people, and procedures meet the exacting standards of major prime military contractors including the Martin Company, General Electric Company, Bunker-Ramo Corp., Nortronics Division of Northrop Corporation, the Lockheed Missiles and Space Company, and International Telephone and Telegraph Corp. Magne-Head is serviced by quality control representatives of both the United States Air Force and Army Ordnance.

Factory Sales and Application Engineering staffs are available for on-the-spot consultations in the customer's plant. A strong network of representatives is maintained throughout the United States to provide fast, convenient customer service.

Design and production facilities are located in Hawthorne, California, the heart of the aerospace complex near Los Angeles International Airport, and provide convenient customer liaison and the fastest possible delivery of hardware to both the domestic and foreign markets.



MAGNE-HEAD *a division of General Instrument Corp.*

13040 South Cerise Avenue * Hawthorne, California 90250 * 213 679-3377/772-2351 * TWX910-325-6203